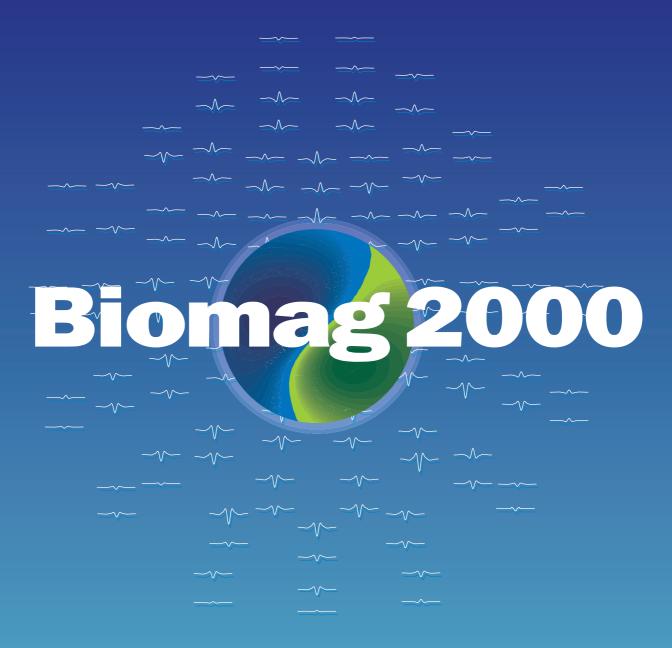
Proceedings of the 12th International Conference on Biomagnetism

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Short instructions for pdf navigation

Dear Reader	i
Preface	
Organizers	
Collaborators	. V
Table of Contents	. vi

Dear Reader

Having started already in the middle of the 1970's, the International Conferences on Biomagnetism are bringing together scientists with very interdisciplinary backgrounds, working in biological, psychological, medical, technical or in other associated disciplines, to discuss their experience and exchange results of their research. In the first Meeting, in Boston in 1975, there were 22 participants. Subsequently, the number has grown steadily. In the 12th Conference, Biomag2000, we had more than 500 participants.

The Scientific programme of Biomag2000 covered all major areas in biomagnetism. It included invited lectures by outstanding researchers, high-quality contributed papers, and posters. Altogether, this added to 475 oral or poster presentations. The largest number of them were devoted to biomagnetic studies of brain function, but cardiac and other studies were also well represented. To a certain extent, complementary methods for multimodal imaging were included. Reports of instrumental development and the commercial exhibition were essential parts of the Conference as well.

The Biomag2000 Conference was the first one in the series of Biomagnetism Conferences where e-mail, Internet, network-communication and electronic publishing were extensively used. The pre-registration, submission of the abstracts, information on the Conference, and transmitting the scientific papers were done on a large scale electronically. The enterprises in the exhibition could be reached via the net and the proceedings appear on a CD-ROM. It was decided, however, that the lectures were not transmitted via the Internet. That was left to future conferences.

The still increasing number of participants shows that the International Conferences on Biomagnetism are needed also in the future. It is the role of the International Advisory Board to ensure the integrity and continuation of the series of Conferences in Biomagnetism. The future conference sites are decided in the General Business Meetings during the Conferences. The Biomag2002 will be held in Germany (Jena, August 2002) and the following conference in the U.S.A. (Boston, 2004).

A number of people from the Helsinki University of Technology and the University of Helsinki, but also from abroad, contributed to the success of organizing Biomag2000, either as scientific or organizing members of the Conference committees. I would like to thank them all for their collaborative work as well as the general, scientific and office secretaries, the technical personnel and the TSG Conference Office. We are also grateful for the support to the Conference, obtained from the City of Espoo, Helsinki University of Technology, University of Helsinki and the Academy of Finland. Special thanks go to our Main Collaborators.

It was a great pleasure to see you in Otaniemi.

Toivo Katila Chairman of Biomag2000

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Preface

More than 500 scientists participated in the 12th International Conference on Biomagnetism. Altogether, they submitted 457 abstracts, delivered 4 plenary and 9 keynote lectures, gave 48 contributed talks in 9 symposia, 44 talks and one round table discussion in 12 special interest workshops, and presented 369 posters. Most presentations focused on basic research, but clinical applications had also a significant contribution.

These Proceedings include 267 papers in the following categories: Audition (37 papers), Vision (19), Somatosensation, pain, and other senses (21), Motor functions (5), Cognition and language (16), Clinical MEG, epilepsy, and DC-MEG (28), Magnetocardiography (27), Volume-conductor and forward modelling (15), Inverse modelling (37), Cardiac modelling (10), Signal analysis (16), Instrumentation (21), and Other biomagnetic applications and imaging methods (15). Thus, about half of the papers are directly devoted to studies of brain function. Another relatively large group of papers is related to the studies of the cardiac function. Modelling studies of the forward and inverse problems continue to be of high interest.

In this conference series, the number of presentations has steadily increased, while the number of pages in the Proceedings during the last decade has stabilized around 1000. The largest increase of the presentations has been in magnetoencephalography, while magnetocardiography and other biomagnetic applications have shown a steadier trend. In Biomag2000, functional biomagnetic imaging of the brain and the heart and the multimodal aspects appeared to be the most rapidly developing new areas. In addition, the role of clinical applications is becoming more and more significant.

The Proceedings of the Conference are available in two ways. All participants will receive a CD-ROM, not only containing the presentation mentioned above, but also some other multimedia material on the Conference. The articles are readable with the aid of Adobe® Acrobat® Reader, while the picture material is included in jpg format. The Conference material is also available via the Biomag2000 web-site at http://biomag2000.hut.fi.

Jukka Nenonen, Risto J. Ilmoniemi, and Toivo Katila Editors of the Proceedings

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